



Committed to security.



CONTROL AND SUPERVISION SOFTWARE **SCS**





SCS

Control and SUPERVISION software

The SCS system, System Control and Supervision, permits the **supervision and control of complex systems** using an extremely simple interface, aligned with the most up to date data presentation technologies.

SCS integrates the management of various different types of device: **intruder control units, fire alarm control units, access control systems, video recording systems, building monitoring systems.** The management and control of

the system is effected by navigating **graphical maps.** Icons are positioned on the map, which **provide in real time, using appropriate shapes and colours, the status of the element or group of elements represented.**

The operator also has the capability to send commands to the system, for example isolation of a sensor, arming of a particular area, display of a specific camera as well as groups of commands to the devices that make up the system.

As well as recording the events or alarms provided by the field devices the system also records all the operator actions taken on the supervision computer. This allows a subsequent analysis of everything that has happened on the system, for example a list of entries via the access control system, alarm events, operator actions in response to an event, alarm images from cameras and many others.



for all types of SECURITY systems

Fire Alarms



Video image recording



Intruder Alarms



Video Surveillance



Access Control

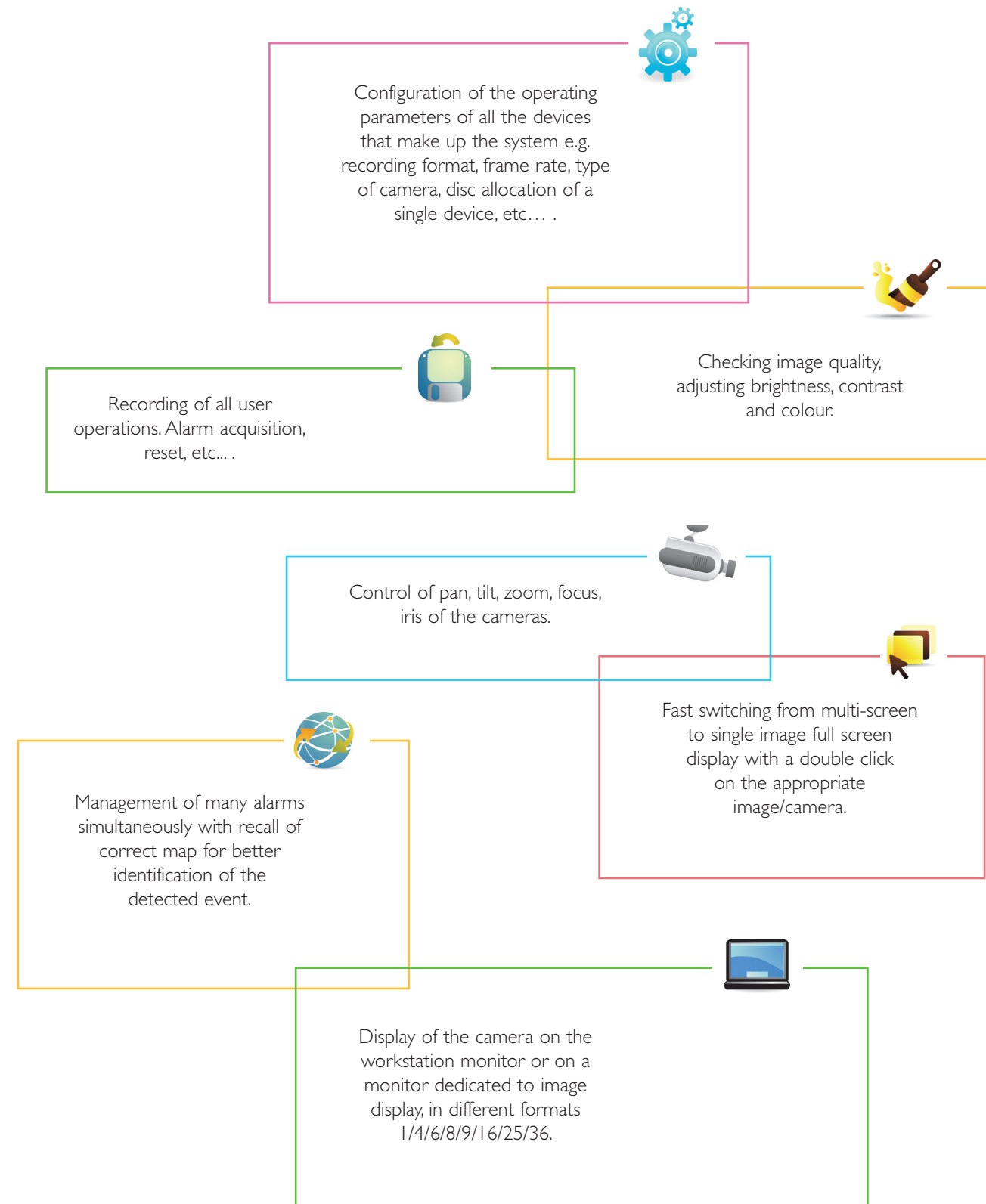
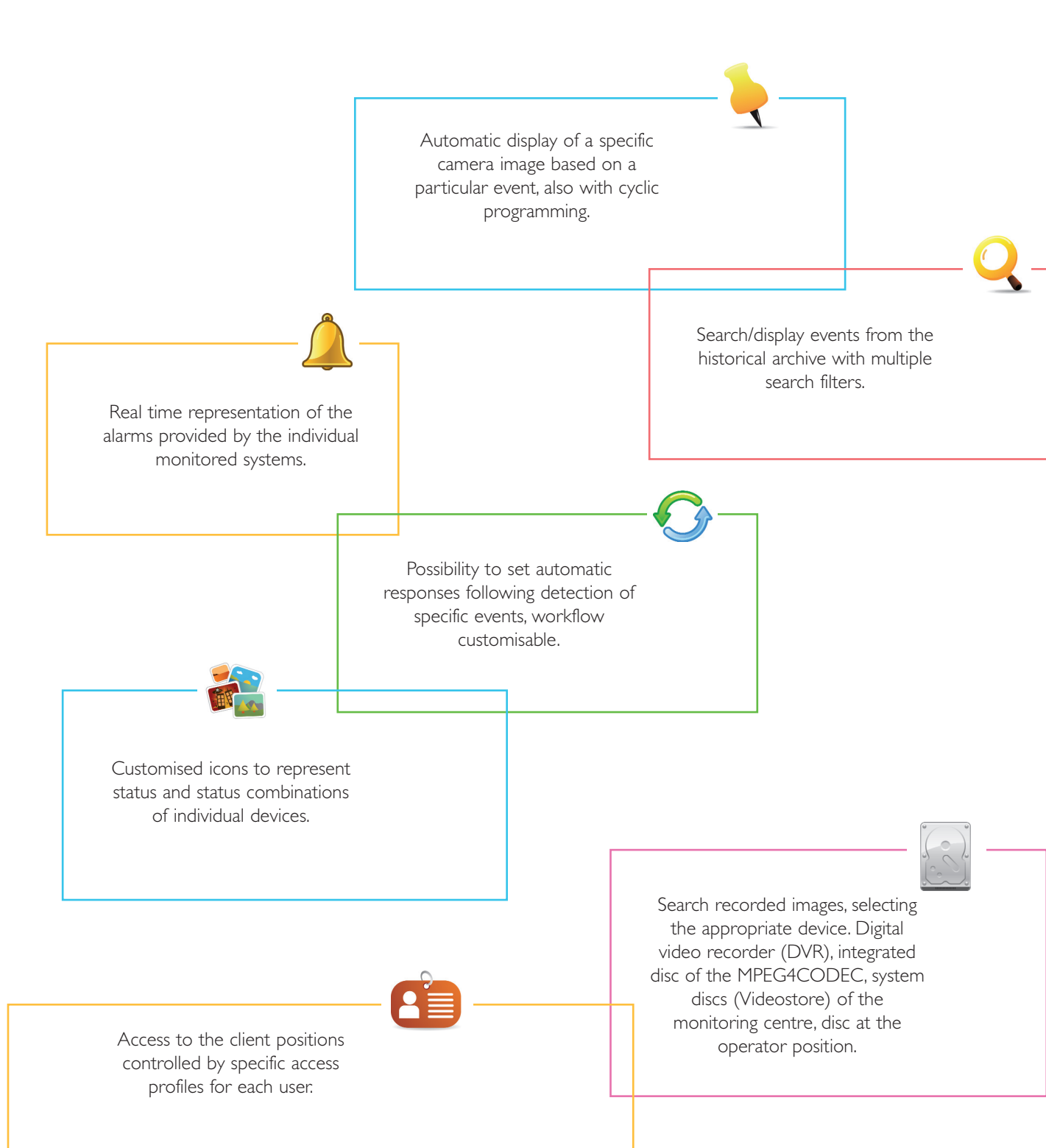


Building Management





Functions





HARDWARE Architecture

The SCS allows the centralisation of very complex systems and is completely scalable.

The diagram below shows a graphical representation of the various devices that can be managed.

Various types of devices can be supported:

- **Perimeter sensors** with different technologies such as IPS infrared barriers, GPS buried sensors, CPS microphonic sensors, Snake fibre optic sensors and all of the devices

used with the Multiplex2000 architecture.

- **Alarm control units** of all types that can be connected to sensors of all technologies and types: volumetric, magnetic contacts or contacts provided by generic systems (switchboards, door controls, etc)

- **Fire alarm control units**
- **GPS Standard and Samsung access control devices**, which can control and manage the complete status of an entrance.
- **Samsung Codec, IP cameras and**

DVR.

- **GPS Standard Codec** with intelligent image analysis.
- Any brand of **camera** interfaced using the GPS Standard and Samsung codec/DVR.

Dependant on the complexity of the system and the level of security required it is possible to assign a single PC to all the functions necessary to the operation of a complete system or to distribute the tasks over different PC.

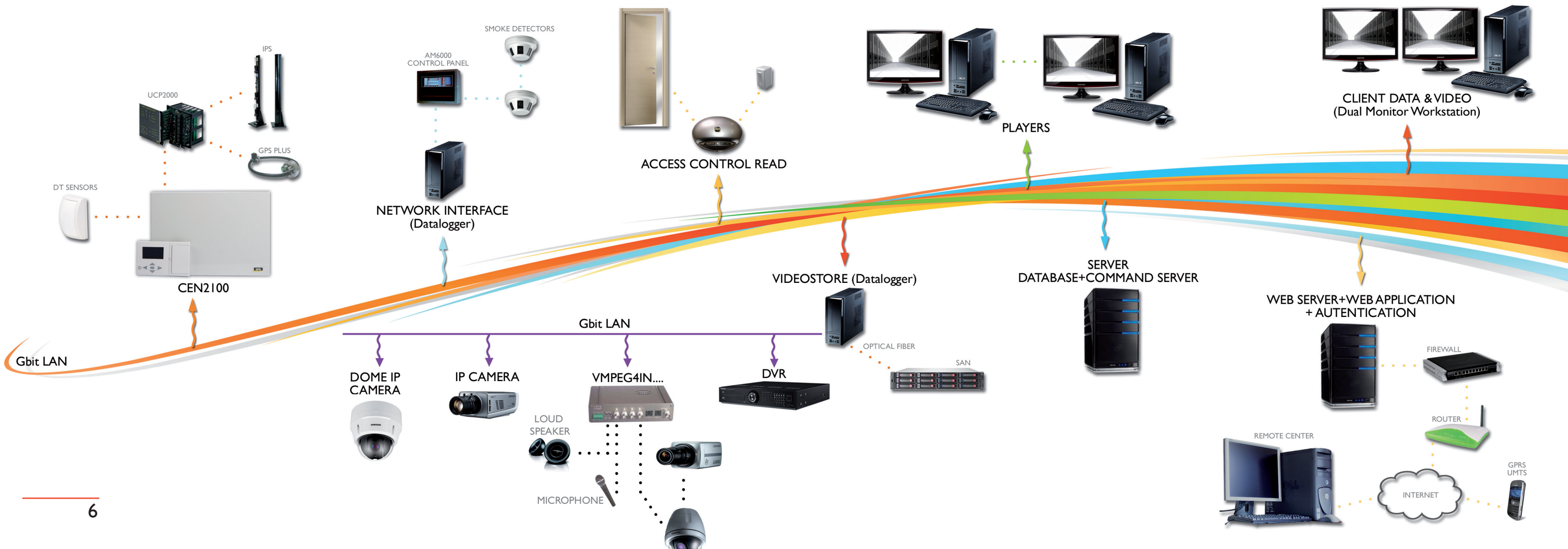
In the example in the figure below it is possible to identify different PCs that, dependant on the programs installed, carry out different functions (Server; Client, Player; Data Logger). The PC are interconnected using a LAN/WAN. Using simple and intuitive programming logic it is possible to correlate events and actions between devices with different types, for example:

- **Automatic display of a group of cameras** following a system alarm

- event such as detection by a perimeter sensor;
- **Arm or disarm an area** following a clocking in at an access control terminal;
- **Automatic launch of a video clip on a Player monitor** giving evacuation instructions following a fire alarm.



It is also possible to program the system to execute a series of pre-programmed commands based on a schedule or on command from an operator.





SOFTWARE Architecture

The SCS system is deigned on the Microsoft ".NET" platform and implements a Client –Server architecture.

The system manages a virtually unlimited number of HW devices, which can be field devices (control units, sensors, cameras, badge readers, etc...) or control devices

(Control terminals either traditional or wireless, image display devices, image recording devices, etc...).

To store all the data relating to the system such as maps, icons, sounds, device configurations, operators, event priorities, recordings, the system uses an SQL database

DATABASE

Contains all the data that defines the system, the device configuration table, the user table with related access rights, the historical events, the rules relating to the automatic activation of

commands following an event (macro); resides which functions as a server for the SCS system. There is one for every system that is one for every Control Centre.

COMMAND SERVER

This is the software module that manages the access to the database for the users, checking the access rights on system login, managing the restrictions on specific commands or devices, up to enabling the transfer of information from the system devices (database, live and recorded video streams, etc..) to

the users. Any demand for access is controlled by the "Command Server". Generally resides on the server containing the database but can be installed on any computer that forms part of the SCS system network. There is one for every Control Centre.

PROXY

This is also a software module associated with the Data Logger, when used to control video devices. It is used to receive video streams originating from a camera or a codec and to send them to all petitioners. The object is to reduce the requests for video streams from hardware devices. This avoids multiple requests for the same video stream from the same device.

DATA LOGGER

This is the software module used for the acquisition of data from the peripherals (alarm control units, fire alarm units, access control systems, video devices, ...), which it converts into a compatible system format and sends it to the database where it is stored and made available to the users. The datalogger has a multiplicity of drivers, one for each type of device connected. The system can require many dataloggers, as many as are necessary for connection to the equipment, either for performance reasons (processing power requirements) or connectivity. In particular, when a device does not have a direct network interface, is located in a different part of the system, it is recommended to provide additional dataloggers which, as well as managing the protocol with the device, can also provide the physical connection for the device to the information network of the SCS system. As for the video sub-systems (cameras and videostore), based on resolution, frame rate requirements, these can require considerable processing power which means that it may be necessary to sub-divide their management over multiple dataloggers.

VIDEOSTORE

This is a software module associated with the datalogger, used when the datalogger is used to control video devices. It manages the Hard Disc storage as well as the high quantity of images coming

from the cameras.

Any computer present in the system installation can provide the Videostore function.

PLAYER

In the control center it is often necessary to display a high number of images coming from the cameras; in this case, when the display performance of the client is not sufficient, the use of one or more "Players" is visualised. The Player is a SW module installed on a computer with an associated monitor on which the images from the cameras are displayed.

CLIENT

This is a software module that provides the user interface. Each Client position can be connected simultaneously to different systems. In a system there are as many Clients as there are workstations for controlling the

system. The Client integrates the management of the system on maps and simultaneously the display of live and recorded images. Using a dual monitor board it is possible to simultaneously display the images from the cameras (in

1/4/6/8/9/16/25/36 image formats) on one monitor and the graphic maps or any other menu required by the user (physical structure, historical events, etc. ..) on the other.





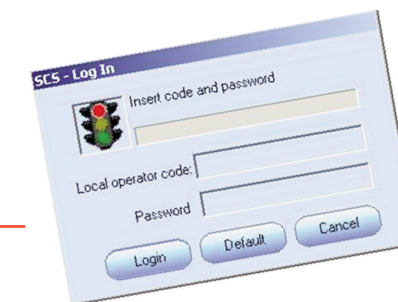
SYSTEM Configuration

The configuration of a system is very simple. The first operation is to create a physical structure, which consists of a list of hardware devices that will be controlled by the system, to give the system references by which they will be added (IP address, authentication password, serial port, etc), assign the devices to the various dataloggers that they will be working with.

All the elements that are part of the system are then displayed using a tree representation that allows immediate access to them. The display is dynamic and therefore for each different element there are different displays based on the current status (a sensor, for example, is coloured red in alarm, yellow in tamper, grey if out of service, etc. ...).

Also available, for each element represented, are the commands available for that particular element (e.g. sensor exclusion, output activation, request an image from a camera, etc. ...). The command is only valid if the if the operator who sends it is enabled; the object assumes a shape/colour consistent with the new status. Variations in the configuration of

the devices can be executed easily by the operator, provided that they have the correct access rights. Adding a new device to the physical structure gives an immediate verification of normal operation by displaying the status assumed: rest, alarm, active and others



Event List

Every event generated by a device and every action originated by an operator is stored in the event list and cannot be modified or deleted. Analysis of the of the event list is made easy by a filtering system, that allows the event or action to be discriminated, based on the following variables:

- Type of device that generated the event or on which the action took place;
- Single element present in the physical structure;
- Operator that took the action;
- Actions taken by operators;
- Date of event or action;
- Type of event received;
- Confirmed or not confirmed by operator;
- Priority level of event;
- Object status.

The events may be exported as text or CSV files so that they may be exported to a PC that does not have access to the system.

In addition, it is possible to define, for each event generated by each device on the system, if the event is significant (must be recorded in the event list), if it requires acknowledgement by the operator (on the graphic map menu), if it must be sent to the printer and the name of a macro that must be automatically executed by this event. Using this tool defines the association between the system generated events and the actions that the system must take automatically on reception of the event.





LOGICAL Structure



For complex systems it is important to decide on **logical groupings that represent parts of the system** (e.g. all the fire sensors of a building, all the security doors on the ground floor of a store).

This can be done using a "logical structure editor" which allows the easy construction of a logical definition of the system to meet the **specific requirements of each installation**.

The Macrogroup so generated will have a status that is a combination of the conditions of the devices in the group. The icon for a Macrogroup can be freely positioned on the map.

ICON CONFIGURATION

The monitoring of the device status is effected using maps on which the icons are positioned. These change shape/colour dependant on the status of the

device represented.

It is possible to modify the existing icon set and to create new ones, using the Icon Editor. Each icon can be substituted with any image in the "ico" format or in any standard graphic format (bmp, jpg, tif, gif). It is also possible to create animated icons.

MACRO PROGRAMMING

Macros are programmable sequences of commands, also on

different devices, which can be launched manually by an operator (also by using a map icon),

following any event recorded by the system, or based on the date/time. Dependant on the type of instruction selected, the lines of programming are automatically prepared for the easy insertion of the operating parameters. One macro can contain another macro (nested macro) or even contain a command that recalls the same macro, to create an infinite

cyclic sequence. This functionality could be used, for example, to create a continuous cycle of live images on a Player.



The icons assume different shapes/colours dependant on the status of the element represented.

The monitoring of the devices is by the positioning of icons on the maps.

The map display makes management of the system simple and immediate.



Interface

GRAPHIC MAPS

The SCS allows representation of the system using an unlimited number of maps. Navigation icons allow the passage from one map to another with the simple double click on the icon that represents the part of the system required. An editor, integrated with the system, allows the association of each map with a background (usually a floor or site plan) for insertion of the icons that identify the elements (sensors, actuators, areas, ...) and to position them extremely accurately at the exact point required.

Using the icons it is possible to send commands to the element to which it is associated (e.g. activate an output, exclude a sensor, etc. ..). An icon that represents a camera allows the image from the camera to be requested and displayed on the same monitor of the computer used by the operator or on an auxiliary monitor. It is possible to request either "live" images or "recorded" images. In case of alarm the system can be programmed to automatically activate, on one or more monitors, the image from the camera associated with the sensor that caused the alarm, with a cyclic,

sequenced video display of the pre/post alarm images.

CLIENT VIDEOWALL

Usually the Client PC is provided with a second video card. On the second monitor the Videowall can be projected, which allows display of images directly from the cameras and reproduction of recorded video streams. The operator can select the images to be reproduced on the Videowall. It is also possible to instruct the system to reproduce automatically on the operator's Videowall, in case of an alarm, the

images from the scene where the alarm occurred, as well as video streams or pre-recorded animations.

PLAYER

The Player can project on a monitor:

- Live images
 - Recorded Pre/Post Alarm images (the VMPEG4 codec supports this function)
 - Video streams or pre-recorded animations
 - Reproduce live cyclic images
- The Player is used, for example, in front desks, halls, or in areas where

it is convenient to reproduce the images, without direct intervention of an operator. In fact the image reproduction settings cannot be modified locally, but must be controlled by a Client, managed automatically by the system or by a timed schedule. The Player can be installed on a suitable PC, or it is possible to set a datalogger to manage the video equipment so that its monitor will function as an integrated Player. A further function of the integrated Player is the Dome Player. In this case, the datalogger PC can be configured complete with integrated Player

and Dome Player; using two monitors. The live images from the cameras are reproduced on the first monitor while on the second monitor there are the joystick controls for a Speed dome. Using Drag and Drop functions it is possible to drag one segment of the Player on to the Dome console and control the camera using the joystick control and the saved pre-sets.

Infrared Barrier
out of service



Camera tamper



Fence sensor
ALARM



Invisible Buried
Sensor working



Infrared Barrier
clear





PERSONAL data for all USERS





Security

Access to the control terminals is via double authentication.

A FIRST AUTHENTICATION gives a level of access to the Client. Dependant on the credentials (configurable by the administrator) the user can be enabled or disabled from directly:
-Modifying their own or other lists of connections to the various systems;
-Being able to use other programs

present on the PC;
-Being able to close the Client application;
-Modify their own or other credentials for Client access;

A SECOND AUTHENTICATION allows the user to be authenticated and access one of the systems for which they are authorized and to connect using Username and Password.

The system provides very flexible operator management, which can associate the User with different, pre-configured user profiles: supervisor, engineer, guard, and others.

These attributes can be freely configured and expanded by the system administrator. It is also possible to make specific restrictions or enable specific access rights to each individual

operator if necessary. The specific access rights per operator are used at different levels.

It is possible to enable or disable:
-The display of the status of each individual object on the system;
-The reception of events generated by any single object;
-The activation of actions for any single object;
-The display of any single map;
-The execution of any single

command list (macro);
-The display of the status of any single macrogroup of devices

The possibility to enable or disable access rights for each operator allows the system into areas of competence.

SUPERVISOR, configuration of the system and devices, management of all the users and their access rights, management of access control badges, monitoring the complete system status.

ACCESS CONTROL ADMINISTRATOR, management of access control badges.

OPERATOR, can have a completely personalised set of access rights.

GUARD, monitoring the complete system status.

ENGINEER, has the same privileges as the Supervisor but is not allowed to manage the users and their access rights.



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